AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated below.

1. (Currently Amended) A process for producing an integrated circuit comprising reducing copper oxide on a substrate to leave copper from the copper oxide on the substrate while removing oxygen from the copper oxide by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic reducing agent is not plasma activated.

2. (Original) The process of Claim 1, wherein the layer further comprises oxygen.

3. (Original) The process of Claim 1, wherein the layer serves as a hard mask.

4. (Original) The process of Claim 1, wherein the organic reducing agent comprises at least one functional group selected from the group consisting of alcohol (-OH), aldehyde (-CHO), and carboxylic acid (-COOH).

5. (Previously Presented)) The process of Claim 4, wherein the organic reducing agent is selected from the group consisting of primary alcohols, secondary alcohols, tertiary alcohols, polyhydroxyalcohols, cyclic alcohols, and halogenated alcohols.

6. (Previously Presented) A process for producing an integrated circuit comprising reducing copper oxide on a substrate by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic reducing agent is not plasma activated, and wherein said organic reducing agent is selected from the group consisting of:

compounds having the general formula R^3-CHO, wherein R^3 is hydrogen or a linear or branced C_1-C_{20} alkyl or alkenyl group;

compounds having the general formula OHC-R^4-CHO, wherein R^4 is a linear or branched C_1-C_{20} saturated or unsaturated hydrocarbon;

a compound of the formula OHC-CHO;

halogenated aldehydes; and

other derivatives of aldehydes.

7. (Previously Presented) A process for producing an integrated circuit comprising reducing copper oxide on a substrate by exposure to one or more vapor phase organic reducing agents prior to deposition of a layer comprising silicon carbide, wherein the vapor phase organic

reducing agent is not plasma activated, and wherein the organic reducing agent is selected from the group consisting of:

compounds of the general formula R^5COOH, wherein R^5 is hydrogen or a linear or branched C_1-C_{20} alkyl or alkenyl group;

polycarboxylic acids;

halogenated carboxylic acids; and

other derivatives of carboxylic acids.

8. (Previously Presented)) The process of Claim 1, wherein said copper oxide is present after a chemical mechanical polishing (CMP) step.

9. (Original) The process of Claim 1, wherein said copper oxide is formed by exposure to a clean room atmosphere.

10. (Original) The process of Claim 1, wherein said exposure takes place in a first reaction chamber.

11. (Original) The process of Claim 10, wherein said layer serves as an etch stop.

12. (Original) The process of Claim 11, wherein deposition of the etch stop layer also takes place in the first reaction chamber.

13. (Original) The process of Claim 11, wherein deposition of the etch stop layer takes place in a second reaction chamber clustered with the first reaction chamber.

14. (Original) The process of Claim 11, wherein the temperature in the reaction chamber is less than about 450°C.

15. (Original) The process of Claim 11, wherein the temperature in the reaction chamber is between about 200 and 430°C.

16. (Original) The process of Claim 11, wherein the temperature in the reaction chamber is about 400°C.

17. (Original) The process of Claim 11, wherein reduction of copper oxide and deposition of the etch stop are carried out in the same reaction chamber at about the same temperature.

18. - 27. (Cancelled).

28. (Currently Amended) A process for producing an integrated circuit comprising the following steps, in order:

depositing a copper layer on a substrate;

subjecting the copper layer to a CMP process;

reducing copper oxide on the substrate to leave copper from the copper oxide on the substrate while removing oxygen from the copper oxide by contacting the substrate with one or more vapor phase organic reducing agents; and

depositing an etch stop layer on the substrate, wherein the organic reducing agents comprise at least one functional group selected from the group consisting of alcohol (-OH), aldehyde (-CHO), and carboxylic acid (-COOH),

wherein the vapor phase organic reducing agent is not plasma activated.

29. (Cancelled).

30. (Original) The process of Claim 28, wherein the etch stop layer comprises silicon carbide.

31. (Original) The process of Claim 30, wherein the etch stop layer further comprises oxygen.

32. (Original) The process of Claim 28, wherein the etch stop layer comprises silicon nitride.

SUMMARY OF INTERVIEW

Applicants thank the Examiner for the opportunity to discuss the present application in telephonic interviews on September 24, 2004 and September 29, 2004. Applicants' representative and the Examiner agreed that claim language clarifying that in reducing copper oxide on the substrate copper from the copper oxide is left on the substrate while oxygen is removed from the copper oxide would distinguish the cited art, which etches copper oxide rather than "reducing" in the sense clarified by the amendments. Applicants proposed the amendments herein and the Examiner found that they would be sufficient to distinguish the art cited in the current rejections. Finally, the Examiner indicated that because he had already done extensive searching, he would be willing to enter the present amendments after final.